

EXPANSION & RENOVATE AS NEW – PHASE 1

**CRYSTAL LAKE ELEMENTARY SCHOOL  
284 SANDY BEACH ROAD  
ELLINGTON, CT 06029  
STATE PROJECT NO. 048-0058 EA/RR/PS**

S/P+A PROJECT NO. 12.140

**DATE: January 9, 2014**

The following changes to the Drawings and Project Specifications shall become a part of the Drawings and Project Specifications; superseding previously issued Drawings and Project Specifications to the extent modified by Addendum No. 7.

**General Information/Clarifications:**

- See attached RFIs. (5)

**Changes to the Addenda:**

- ADDENDUM #4, Changes to the Specifications, Page 2, SECTION 090000, SCHEDULE OF FINISHES, Page 13, Window Treatments, RS-1, Location, add to the end the following:  
  
“Exceptions: Storage A105, Toilet A109 & A112, Corridor A120, Kiln A128, Storage B131 and Vestibule C146”
- ADDENDUM #5:
  - RFI #40, Item 51, revise response to read as follows:  
  
“Power Assist Operators are not applicable and are deleted from the project.”
  - Changes to the Drawings, Page 8, DRAWING A101, FIRST FLOOR PLAN AREA ‘A’, revise to read as follows:  
  
“First Floor Plan – Area ‘A’ 1, Science Storage A125, revise section tag “B/A503” to read “C/A503””.
- ADDENDUM #6, Page 1, General Information/Clarifications:
  - First bullet, revise “at 9:00am” to read “from 8:00am-10:00am”.
  - Second bullet, revise “January 16” to read “January 15”.

**Changes to the Specifications:**

- TABLE OF CONTENTS:
  - Page 2, Division 5 – Metals, revise “Section 053100” to read “Section 053000”.

- Page 3:
  - Division 7 – Thermal and Moisture Protection, Section 078100, delete in its entirety.
  - Division 8 – Openings, Section 087100, Door Hardware, Pages, revise “20” to read “25”.
- SECTION 078100, APPLIED FIREPROOFING, delete in its entirety.
- SECTION 087100, DOOR HARDWARE, delete in its entirety. A new SECTION 087100, DOOR HARDWARE has been added and is attached as part of this addendum. This revised section incorporates all previous addenda items. (25)

**New Drawings:**

- DRAWING SKA6, READING/LANGUAGE ELEVATIONS has been added and is attached as part of this addendum. This detail adds information to Drawing A722.
- DRAWING SKA7, HEAD DETAIL AREA ‘A’ has been added and is attached as part of this addendum. This detail adds information to Drawing A552.
- DRAWING SKA8, JAMB DETAIL AREA ‘A’ has been added and is attached as part of this addendum. This detail adds information to Drawing A630.
- DRAWING SKA9, JAMB DETAIL AREA ‘A’ has been added and is attached as part of this addendum. This detail adds information to Drawing A630.
- DRAWING SKA10, JAMB DETAIL AREA ‘A’ has been added and is attached as part of this addendum. This detail adds information to Drawing A630.

**Changes to the Drawings:**

- DRAWING A007, 1<sup>ST</sup> FLOOR DEMOLITION PLAN AREA ‘B’ & ‘C’:
  - Demolition Notes, add the following:
    - “44. Remove brick and concrete block masonry adjacent to PCB caulking as required by Hazardous Material Abatement Drawing HAZ002. See Drawing HAZ002 for scope, locations and removal/disposal protocol.”
  - First Floor Demolition Plan – Area ‘B’ & ‘C’ 1, add symbol for Demolition Note ‘44’ at the following locations:
    - South wall of AV Room
    - Reading Room exterior door/window opening
    - Resource Room exterior door/window opening
    - Vestibule, west of Speech/Language, exterior door
    - Gymnasium east facing exterior door and south wall
    - Vestibule, north of Music Room, exterior door

- DRAWING A008, OVERALL ROOF DEMOLITION PLAN, add the following:

“Existing Roof Composition

This information is intended to supplement Roof Demolition Note #1 and does not replace the information found on Drawing A008.

- For all existing 1955 era built up roofs in Part A, refer to Drawings A008, A131 & HAZ003 – there is a minimum of 3 inches insulation and/or cover board and multiple layers of built up roofing membrane topped with pea gravel.
- For the existing 1955 era shingle roof “A1” in Part A, refer to Drawings A008, A131 & HAZ003 – there is one (1) layer of shingles, membrane flashing and building paper underlayment.
- For all existing 1977 era roofs in Part B, refer to Drawings A008 & A132 – there is an average of 3.5 inches insulation and/or cover board and one (1) layer of roof membrane. Tapered insulation on Roof “B1” ranges from 2.5 inches at the gutter low point to 5.5 inches at the high point.”
- DRAWING A102, FIRST FLOOR PLAN AREA ‘B’:
  - Construction Notes, Areas ‘A’ & ‘B’, add the following:

“18. Patch existing brick and concrete block masonry at PCB removal locations to match existing adjacent walls. Tooth in all masonry patches. See Drawing HAZ002 for scope, locations and removal/disposal protocol.”
  - First Floor Plan – Area ‘B’ 1, add symbol for Construction Note ‘18’ at the following locations:
    - South wall of Vestibule B132
    - Exterior door/window of Media Office B133 and Media Center B129
    - Vestibule B111 exterior door
- DRAWING A620, WINDOW ELEVATIONS has been deleted in its entirety. A new DRAWING A620, WINDOW ELEVATIONS has been added and is attached as part of this addendum.\*
- DRAWING A722, CASEWORK ELEVATIONS, Elevation 1, revise “Psychologist Office – West” to read “Social Worker Office – West”.
- DRAWING A910, DOOR SCHEDULE AREA ‘A’ & ‘B’, Door Schedule – First Floor Area ‘B’, Door B132B, delete symbol for “power assist operator” in its entirety.
- DRAWING A930, FINISH SCHEDULE, Room Finish Schedule – First Floor Area ‘B’, Kitchen B106 and Storage B108, Wall Finish, delete “P1” in its entirety.
- DRAWING E201, 1<sup>ST</sup> FLOOR POWER PLAN, AREA ‘B’, 1<sup>st</sup> Floor Power Plan, Area ‘B’ 1, Vestibule B132, delete “powered door operator” symbols in their entirety.
- DRAWING E300, LIGHTING SCHEDULE & LEGEND, Electrical Legend, delete “powered door operator” symbol and note in its entirety.

**The bid date remains Wednesday, January 22, 2014 at 11:00am by this addendum.**

The addendum consists of thirty-four (34) pages of 8½" x 11" text, five (5) 8½" x 11" drawings and one (1) 30" x 42" drawing\*.

End of Addendum #7



January 6, 2014

Silver/Petrucelli + Associates  
 3190 Whitney Ave  
 Hamden, CT 06518  
 Via email [pjorgensen@silverpetrucelli.com](mailto:pjorgensen@silverpetrucelli.com)

Re: Crystal Lake Elementary School  
 Ellington, CT  
 RFI #3

Dear Paul:

Further review of the bid documents has raised additional questions. To avoid confusion, we have continued our questions in numerical order from our original RFI #2 dated 12/27/13.

#### DIVISION 1 – GENERAL

64. The List of Drawings on A001.2 includes HAZ004 however this drawing was not included on the CD we purchased from Merritt. Can you confirm this drawing exists and if so please forward.

**Response: Drawing HAZ004 does not exist and will be deleted from the list of drawings.**

#### DIVISION 6 – WOOD & PLASTICS

65. Staff Work B102 (Elevations 4,5/A721) – This and other rooms/elevations show the counters as both solid surface and P.Lam counter. Please clarify which counter material.

**Response: The reference to plastic laminate is for the apron on the casework. The countertop material is solid surface. There are no plastic laminate countertops on the project. Refer to detail 13/A800 for clarification on referenced elevation 4,5/A721.**

66. Storage A104 looks like it may have shelving in plan but no elevations. Please clarify the scope and provide elevations/details accordingly.

**Response: A104 is existing shelving to remain.**

67. Reading Language C135 and C136 appear to have casework in plan but are not elevated. Please provide the elevations.

**Response: See SKA6 Reading/Language elevations, Addendum #7.**

#### DIVISION 7 – THERMAL & MOISTURE PROTECTION

68. Addendum #1 – please provide location of Spec 071326 Self Adhering Sheet Waterproofing.

**Response: This is the air/vapor barrier that is on stud back-up with masonry veneer such as shown on Wall Section C/A510.**

#### DIVISION 9 – FINISHES

69. This is a revision to EBI question #6



Spec 096813 paragraph 3.2B: Please confirm this is the only leveling required for spec section 035413 work and installed at existing concrete floors only.

**Response: See RFI #38.**

DIVISION 10 – SPECIALTIES

70. Spec 102600 Rooms B106 & B108 note FRP and paint for the four walls in these rooms. Please confirm the FRP height for these rooms/walls

**Response: Provide FRP for all walls in rooms B106 and B108 from top of quarry tile base to ceiling.**

71. Details C & D/A553 notes a ¼” FRP wall finish.

a. FRP in spec 102600 is 1/8” thick. Please clarify product.

**Response: All FRP to be 1/8” thick, note on A553 to be revised.**

b. FRP is not in the finish schedule for Room A106 and we do not find Fan Room either.

**Response: FRP to be added to finish schedule for the Fan Room, not room A106.**

c. We do not find the Fan Room or references to these details on the floor or roof plan. Please provide more detail about this high roof, including the interior finish requirements.

**Response: The Fan Room is part of the existing structure to remain, above Storage A106, and be renovated. Please refer to details C & D/A553. It should be tagged to the roof plan A131, Roof “A4” section cuts north and south. See addendum for roof detail tag clarification.**

Please contact me with any questions concerning the above.

Sincerely,

Joseph Petronella  
Estimator

Cc      File

**From:** Rebecca Bouchard  
**Sent:** Wednesday, January 08, 2014 5:15 PM  
**To:** 'Andrew Barszcz'  
**Subject:** RE: crystal lake elementary school - rfi

Andrew, please see responses to your RFI in red below.  
Thank you.

Rebecca Bouchard, CSI, CDT  
Intern Architect

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**From:** Andrew Barszcz [<mailto:abarszcz@rizzocorporation.com>]  
**Sent:** Wednesday, December 18, 2013 8:42 AM  
**To:** Rebecca Bouchard  
**Subject:** crystal lake elementary school - rfi

Section 122413 - Roller Window Shades

1. Are cranks needed on the motorized shades (they are too high anyway). **–Crank-Operator override is required per spec.**
2. Which rooms are to receive motorized shades? **–See Addendum #3, RFI #12.**
3. Which fabric is specified - Equinox.SW7000? **–Fabric is specified in Section 090000.**
4. Is Draper, inc. an acceptable manufacturer? **–Please submit substitution request per Section 012500.**
5. Confirm windows A5 and A6 do not receive shades. **–See Addenda #4 and #7 for locations.**

Andrew Barszcz  
Estimator  
Rizzo Corporation  
64 Triangle Street  
Danbury, CT 06810  
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AA/EOE Employer

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**From:** Paul Jorgensen  
**Sent:** Wednesday, January 08, 2014 12:01 PM  
**To:** 'Eddie Gebhardt'  
**Cc:** Rebecca Bouchard; David Stein; 'Cullinan Stephen'; Butler Rob; Romejko, Bob  
**Subject:** RE: Crystal Lake School - roof test cuts

Eddie,

Thank you for your interest in the project. Your request to take test cuts has been discussed. It is our decision that **no** test cuts should be taken, instead we will provide more information on the existing roof composition – like the depth of insulation and the membrane, which should help fine tune your pricing. This information will be supplied in our next addendum this week.

Feel free to contact me if you have any questions or want to discuss further. Thanks.

*Paul Jorgensen, AIA*

Associate/Project Architect

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**From:** Eddie Gebhardt [mailto:[eddie@alliedrestoration.net](mailto:eddie@alliedrestoration.net)]

**Sent:** Wednesday, January 08, 2014 11:51 AM

**To:** Paul Jorgensen

**Subject:** Crystal Lake School

Paul,

I plan on taking test cuts at the school on Saturday walk-thru. This is ok. Please let me know.

Thanks,

**Eddie Gebhardt, Senior Project Estimator**

Allied Restoration Corporation

162 Governor Street, P.O. Box 280835

East Hartford, CT 06128-0835

(860) 291-8833 Ph. (860) 291-0770 Fx.



**From:** Rebecca Bouchard  
**Sent:** Thursday, January 09, 2014 11:32 AM  
**To:** Peter Carey (pcarey@millenniumbuildersct.com)  
**Cc:** Paul Jorgensen  
**Subject:** RE: Crystal Lake School

There is no applied fireproofing in the project. The respective section will be deleted as part of Addendum.  
Thank you.

Rebecca Bouchard, CSI, CDT  
Intern Architect

[www.silverpetrucelli.com](http://www.silverpetrucelli.com)

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**From:** Peter Carey [<mailto:pcarey@millenniumbuildersct.com>]  
**Sent:** Wednesday, January 08, 2014 7:32 AM  
**To:** Paul Jorgensen  
**Subject:** Crystal Lake School

Paul,  
Can you tell us where the Applied Fireproofing section 078100 is used. I can't find anywhere on the plans that identify where to apply SFRM fireproofing.  
Thank You

Peter Carey  
Millennium Builders, Inc.  
Phone 860 571-0555  
Fax 860 571-0550  
Cell 860 614-7914

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:

- 1. Mechanical door hardware for the following:
  - a. Swinging doors.
- 2. Cylinders for door hardware specified in other Sections.
- 3. Electrified door hardware.

- B. Related Sections:

- 1. Section 081113 "Hollow Metal Doors and Frames" for door silencers provided as part of hollow-metal frames.
- 2. Section 081416 "Flush Wood Doors".
- 3. Section 083113 "Access Doors and Frames" for access door hardware, including cylinders.
- 4. Section 083473 "Sound Control Door Assemblies" for hinges and gasketing provided as part of sound-rated door assemblies.
- 5. Section 084113 "Aluminum-Framed Entrances and Storefronts" for installation of entrance door hardware, except cylinders.
- 6. Section 281300 "Access Control" for access control devices installed at door openings and provided as part of a security system.
- 7. Section 281600 "Intrusion Detection" for detection devices installed at door openings and provided as part of an intrusion-detection system.
- 8. Section 283111 "Digital, Addressable Fire-Alarm System" for connections to building fire-alarm system.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Details of electrified door hardware, indicating the following:
  - 1. Wiring Diagrams: For power, signal, and control wiring and including the following:
    - a. Details of interface of electrified door hardware and building safety and security systems.
    - b. Schematic diagram of systems that interface with electrified door hardware.

- c. Point-to-point wiring.
  - d. Risers.
  - e. Elevations doors controlled by electrified door hardware.
- 2. Operation Narrative: Describe the operation of doors controlled by electrified door hardware.

C. Other Action Submittals:

- 1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
  - a. Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in Project construction schedule.
  - b. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
  - c. Content: Include the following information:
    - 1) Identification number, location, hand, fire rating, size, and material of each door and frame.
    - 2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
    - 3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
    - 4) Description of electrified door hardware sequences of operation and interfaces with other building control systems.
    - 5) Fastenings and other pertinent information.
    - 6) Explanation of abbreviations, symbols, and codes contained in schedule.
    - 7) Mounting locations for door hardware.
    - 8) List of related door devices specified in other Sections for each door and frame.
- 2. Keying Schedule: Prepared under the supervision of the Owner, separate schedule detailing final keying instructions for locksets and cylinders in writing. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner to approve submitted keying schedule prior to the ordering of permanent cylinders.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Manufacturer, Installer and Supplier.
- B. Product Certificates: For electrified door hardware, from the manufacturer.
  - 1. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.

- C. Product Test Reports: For compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for door hardware on doors located in accessible routes.
- D. Warranty: Special warranty specified in this Section.

#### 1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule. Include name, address and contact information of the manufacturers providing the hardware and their nearest service representatives.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Engage qualified manufacturers with a minimum five (5) years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: Installer of products and an employer of workers trained and approved by product manufacturers, with a minimum three (3) years document experience installing both standard and electrified builders hardware similar in material, design and extent to that indicated for this Project whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum of five (5) years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design and extent to that indicated for this Project. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect and Owner concerning both standard and electromechanical door hardware and keying.
  - 1. Warehousing Facilities: In Project's vicinity.
  - 2. Scheduling Responsibility: Preparation of door hardware and keying schedules.
  - 3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
- D. Source Limitations: Obtain each type of door hardware from a single manufacturer.
  - 1. Electrified modification or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
  - 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- E. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C, unless otherwise indicated.

- F. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meet requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
  - 1. Air Leakage Rate: Maximum air leakage of 0.3 cfm/sq. ft. at the tested pressure differential of 0.3-inch wg of water.
- G. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
- H. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.
- I. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.
  - 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf.
  - 2. Comply with the following maximum opening-force requirements:
    - a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
    - b. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
  - 3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than ½ inch high.
  - 4. Adjust door closer sweep periods so that, from an open position of 70 degrees, the door will take at least three (3) seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.
- J. Keying Conference: Conduct conference at Project site." In addition to Owner, Contractor, and Architect, conference participants shall also include Installer's Architectural Hardware Consultant. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:
  - 1. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
  - 2. Preliminary key system schematic diagram.
  - 3. Requirements for key control system.
  - 4. Requirements for access control.
  - 5. Address for delivery of keys.
- K. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 2. Inspect and discuss preparatory work performed by other trades.
  - 3. Review required testing, inspecting, and certifying procedures.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.
- C. Deliver keys to Owner by registered mail or overnight package service.

1.8 COORDINATION

- A. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- B. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- C. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- D. Existing Openings: Where hardware components are scheduled for application to existing construction or where modifications to existing door hardware are required, field verify existing conditions and coordinate installation of door hardware to suit opening conditions and to provide proper door operation.

1.9 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures including excessive deflection, cracking, or breakage.
    - b. Faulty operation of doors and door hardware.
    - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
    - d. Electrical component defects and failures within the systems operation.
  - 2. Warranty Period: One (1) year from date of Substantial Completion, unless otherwise indicated.

- a. Exit Devices: Five (5) years from date of Substantial Completion.
- b. Manual Closers: Twenty-five (25) years from date of Substantial Completion.
- c. Bored Locks and Latches: Seven (7) years from date of Substantial Completion.

#### 1.10 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.
- B. Maintenance Service: Beginning at Substantial Completion, provide six (6) months' full maintenance by skilled employees of door hardware Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door and door hardware operation. Provide parts and supplies that are the same as those used in the manufacture and installation of original products.

### PART 2 - PRODUCTS

#### 2.1 SCHEDULED DOOR HARDWARE

- A. Provide door hardware for each door as scheduled in Part 3 "Door Hardware Schedule" Article to comply with requirements in this Section.
  - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and products equivalent in function and comparable in quality to named products, where allowed.
  - 2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door hardware designations, as follows:
  - 1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements.

#### 2.2 HINGES

- A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames
  - 1. Quantity: Provide the following hinge quantity, unless otherwise indicated:
    - a. Two (2) Hinges: For doors with heights up to 60 inches.
    - b. Three (3) Hinges: For doors with heights 61 to 90 inches.
    - c. Four (4) Hinges: For doors with heights 91-120 inches.
    - d. For doors with heights more than 120 inches, provide four (4) hinges, plus one (1) hinge for every 30 inches of door height greater than 120 inches.
  - 2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

- a. Widths up to 3'-0": 4½ inches, standard or heavy-weight as specified.
  - b. Sizes from 3'-1" to 4'-0": 5 inches, standard or heavy-weight as specified.
- 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
  - a. Exterior Doors: Heavy-weight, non-ferrous, ball bearing or oil impregnated bearing hinges.
  - b. Interior Doors: Standard-weight, steel, ball bearing or oil impregnated bearing hinges.
- 4. Hinge Options:
  - a. Non-Removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the following applications:
    - 1) Out-swinging exterior doors.
    - 2) Out-swinging access controlled doors.
    - 3) Out-swinging lockable doors.
- 5. Basis of Design:
  - a. Stanley Commercial Hardware; Div. of The Stanley Works; **CB179**
- 6. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Bommer Industries
  - b. Hager Companies
  - c. McKinney Products Company; an ASSA ABLOY Group company
  - d. Substitutions: Under provisions of Section 012500 "Substitution Procedures".

## 2.3 CONTINUOUS HINGES

- A. Continuous Hinges: BHMA A156.26; minimum 0.120-inch-thick, extruded 6060 T6 aluminum alloy hinge leaves with minimum overall width of 4 inches; non-handed, reversible and fabricated to full height of door and frame to template screw locations; with components finished after milling and drilling are complete. Factory cut hinges for door size and provide with removable service power transfer panel where indicated at electrified openings.
  - 1. Basis-of-Design:
    - a. Markar Architectural Products, Inc.; a subsidiary of Adams Rite Manufacturing Co.
  - 2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Bommer Industries



- b. McKinney Products Company; an ASSA ABLOY Group company
- c. Pemko Manufacturing
- d. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

## 2.4 MECHANICAL LOCKS AND LATCHES

- A. Lock Functions: As indicated in Part 3 “Door Hardware Schedule”.
- B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
  - 1. Bored Locks: Minimum ½-inch latchbolt throw.
  - 2. Deadbolts: Minimum 1-inch bolt throw.
- C. Lock Backset: 2¾ inches, unless otherwise indicated.
- D. Lock Trim:
  - 1. Levers: Cast.
  - 2. Escutcheons (Roses): Wrought.
  - 3. Dummy Trim: Match lever lock trim and escutcheons.
  - 4. Operating Device: Lever with escutcheons (roses).
- E. Strikes: BHMA A156; provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
  - 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
  - 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
  - 3. Aluminum Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
- F. Bored Locks: BHMA A156.2; Grade 1; Series 4000. Lock chassis fabricated of heavy gauge steel, zinc dichromate plated, with through-bolted application. Locks are to be non-handed and full field reversible.
  - 1. Basis of Design:
    - a. Schlage Commercial Lock Division; an Ingersoll-Rand company; **ND Series – Rhodes, Vandlgard** functions
  - 2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Corbin Russwin Architectural Hardware; n ASSA ABLOY Group Company
    - b. Medeco Security Locks, Inc.; an ASSA ABLOY Group company
    - c. SARGENT Manufacturing Company; an ASSA ABLOY Group company; **10 Line Series**
    - d. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

## 2.5 AUXILIARY LOCKS

- A. Cylindrical Deadbolts: BHMA A156.5, Grade 1; cylindrical type deadbolts to fit standard ANSI 161 preparation and 1-3/8 inch to-1¾ inch thickness doors. Provide tapered collars to resist vandalism and 1 inch throw solid steel bolt with hardened steel roller pins. Deadbolts to be products of the same source manufacturer and keyway as other locksets.
1. Basis of Design:
    - a. Schlage Commercial Lock Division; an Ingersoll-Rand company; **B Series**
  2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. SARGENT Manufacturing Company; an ASSA ABLOY Group company; **480 Series**
    - b. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

## 2.6 ELECTRIC STRIKES

- A. Electric Strikes: BHMA A156.31; Grade 1; solenoid powered, DC units, fail/safe option, 24 volts DC for doors, with faceplate to suit lock and frame. Provide compatible power supply and coordinate installation with electrical work.
1. Basis-of-Design Product:
    - a. Adams Rite Manufacturing Co.; an ASSA ABLOY Group company; **Series 7000**
  2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Folger Adam Electric Door Controls; an ASSA ABLOY Group company.
    - b. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

## 2.7 MANUAL FLUSH BOLTS

- A. Manual Flush Bolts: BHMA A156.16; Grade 1; minimum ¾-inch throw. Furnish with top rod of sufficient length to allow bolt location approximately 6 feet from the floor. Furnish dust proof strikes for bottom bolts.
1. Basis-of-Design Product:
    - a. Door Controls International, Inc.; **790F**, designed for mortising into door edge.
  2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Rockwood Manufacturing
    - b. Trimco

- c. Substitutions: Under provisions of Section 012500 "Substitution Procedures".

## 2.8 EXIT DEVICES AND AUXILIARY ITEMS

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts.
  2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
    - a. Fire Exit Removable Mullions: Provide keyed removable mullions for use with fire exit devices complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire and panic protection, based on testing according to UL 305 and NFPA 252. Mullions to be used only with exit devices for which they have been tested.
  3. All exit devices shall be provided with cylinder dogging hardware for manual keying.
  4. Flush End Caps: Provide heavy-weight impact resistant flush end caps made of architectural metal in the same finish as the devices. Plastic end caps will not be acceptable.
  5. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy-duty trim with cold forged escutcheons, beveled edges and four (4) threaded studs for thru-bolts.
    - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets. Provide free-wheeling type trim.
  6. Coordinate exit device operation with cylinder locks where specified. Where the function of the exit device requires a cylinder, provide an interchangeable core type keyed cylinder.
  7. Rail Sizing: Provide exit device rails factory sized for proper door width application. Interior panic hardware shall be cut ½ width of door from latch side only.
- B. Exit Devices and Auxiliary Items: BHMA A156.3; Grade 1. Mounting rails to be formed from smooth stainless steel, brass or bronze architectural materials no less than 0.072 inch thick, with push rails a minimum of 0.062 inch thickness. Painted or aluminum metal rails are not acceptable. Exit device latch to be investment cast stainless steel, Pullman type, with deadlock feature.
1. Basis-of-Design Product:
    - a. Von Duprin; an Ingersoll-Rand company; **Series 99L and 99L-F**
  2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. SARGENT Manufacturing Company; an ASSA ABLOY Group company; **80 Series**
  - b. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.
- C. Tube Steel Removable Mullions: BHMA A156.3; removable steel mullions with malleable-iron top and bottom retainers and a primed paint finish. Provide keyed removal feature, stabilizers and mouting brackets.
  - 1. Basis-of-Design Product:
    - a. Von Duprin; an Ingersoll-Rand company; **Model #9954**.
  - 2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. SARGENT Manufacturing Company; an ASSA ABLOY Group company; **980S Series**
    - b. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

## 2.9 LOCK CYLINDERS

- A. Patented Cylinders: BHMA A156.5; Grade 1; certified cylinders employing a utility patented and restricted keyway requiring the use of patented controlled keys. Provide bump resistant, fixed core cylinders as standard with solid recessed cylinder collars. Cylinders are to be factory keyed where permanent keying record will be established and maintained.
  - 1. Provide a 6-pin multi-level master key system comprised of patented controlled keys and security and high security cylinders operated by one (1) key of the highest level. Geographical exclusivity to be provided for all security and high security cylinders and UL 437 certification where specified.
    - a. Level 1 Cylinders: Provide utility patented controlled keyway cylinders that are furnished with patented keys available only for authorized distribution.
    - b. Level 2 Cylinders: Provide utility patented controlled keyway and side bar locking incorporating unique angled bottom pins for geographical exclusivity. Cylinders constructed to provide protection against bumping and picking.
    - c. Level 3 Cylinders: Provide utility patented controlled keyway and side bar locking incorporating unique angled bottom pins for geographical exclusivity. Cylinders to be UL 437 certified and constructed to provide protection against bumping, picking and drilling.
- B. Source Limitation: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
- C. Cylinders: Original manufacturer cylinders complying with the following:
  - 1. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
  - 2. Bored-Lock Type: Cylinders with tailpieces to suit locks.

3. Collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
  4. Keyway: Match Facility Restricted Keyway.
- D. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:
1. Interchangeable Cores: Core insert, removable by use of a special key; usable with other manufacturer's cylinders.

## 2.10 KEYING

- A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference.
1. Master Key System: Cylinders are operated by a change key and master key.
  2. Grand Master Key System: Cylinders are operated by a change key, a master key and a grand master key.
  3. Great-Grand Master Key System: Cylinders are operated by a change key, a master key, a grand master key, and a great-grand master key.
  4. Existing System: Master key or grand master key locks to Owner's existing system.
  5. Keyed Alike: Key all cylinders to same change key.
- B. Keys: Nickel-silver large bow.
1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
    - a. Notation: "DO NOT DUPLICATE."
  2. Quantity: Provide the following minimum number of keys:
    - a. Top Master Key: One (1).
    - b. Change Keys per Cylinder: Two (2).
    - c. Master Keys (per Master Key Group): Two (2).
    - d. Grand Master Keys (per Grand Master Key Group): Two (2).
    - e. Construction Keys (where required): Ten (10).
    - f. Construction Control Keys (where required): Two (2).
    - g. Permanent Control Keys (where required): Two (2).
- C. Construction Keying: Provide construction master keyed cylinders or temporary keyed construction cores where required. Provide construction master keys in quantity as required by Contractor. Replace construction cores with permanent cores. Furnish permanent cores for installation as directed in keying conference.
- D. Key Registration List: Provide keying transcript list to Owner's representative in the proper format for importing into key control software.

## 2.11 KEY CONTROL SYSTEM

- A. Key Control Cabinet: BHMA A156.5; metal cabinet with baked-enamel finish; containing key-holding hooks, labels, two (2) sets of key tags with self-locking key holders, key-gathering envelopes, and temporary and permanent markers; with key capacity of one hundred fifty percent (150%) of the number of locks.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Lund Equipment Co., Inc.
    - b. MMF Industries
    - c. Telkee
    - d. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.
  2. Wall-Mounted Cabinet: Cabinet with hinged-panel door equipped with key-holding panels and pin-tumbler cylinder door lock.
- B. Key Control Software: Provide one (1) network version of “**Key Wizard**” branded key management software package that includes one (1) year of technical support and upgrades to software at no charge. Provide factory key system formatted for importing into “**Key Wizard**” software.

## 2.12 OPERATING TRIM

- A. Operating Trim: BHMA A156.6; stainless steel, unless otherwise indicated. Coordinate and provide proper width and height as required where conflicted hardware dictates.
1. Push/Pull Plates: Minimum 0.050 inch thick, with square corners and beveled edges, secured with exposed screws.
  2. Straight Pull Design: Minimum 1 inch round diameter stainless steel bar or tube stock pulls with 2½ inch projection from face of door.
  3. Fasteners: Provide manufacturer’s designated fastener type.
  4. Basis-of-Design Product:
    - a. Rockwood Manufacturing Company
      - 1) Push Plates: **70C 4x16**
      - 2) Pulls: **RM4410-12**
  5. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Trimco
    - b. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

## 2.13 ACCESSORIES FOR PAIRS OF DOORS

- A. Coordinators: BHMA A156.3; consisting of active-leaf, hold-open lever and inactive-leaf release trigger; fabricated from steel with nylon-coated strike plates; with built-in, adjustable safety release.
- B. Carry-Open Bars: BHMA A156.3; prevent the inactive leaf from opening before the active leaf; provide polished brass or bronze carry-open bars with strike plate for inactive leaves of pairs of doors unless automatic or self-latching bolts are used.
- C. Astragals: BHMA A156.22.

## 2.14 SURFACE CLOSERS

- A. General: Door closers to be from one (1) manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
  - 1. Door closers are to be mounted on the least conspicuous side of the door. The hardware supplier shall consult with the Architect to verify applications, and note mounting locations on the hardware schedule.
- B. Standards: Closers to comply with UL 10C and UBC 7-2 for Positive Pressure Fire Test and UL listed for use of fire rated doors.
- C. Surface Closers: BHMA A156.4; Grade 1; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.
  - 1. Basis-of-Design Product:
    - a. LCN Closers; an Ingersoll-Rand company; **4040 Series**
  - 2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. SARGENT Manufacturing Company; an ASSA ABLOY Group company; **980S Series**
    - b. Substitutions: Under provisions of Section 012500 "Substitution Procedures".
  - 3. Door closers, marked CLOSER, shall be **Smoothee** series, with delayed action cylinder, sized to the door leaf size.
  - 4. Door closers, marked CLOSER/STOP shall be **Cush-N-Stop** series, with delayed action cylinder, sized to the door leaf size.

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2.15 MECHANICAL STOPS AND HOLDERS

- A. Wall- and Floor-Mounted Stops: BHMA A156.16; Grade 1; polished cast brass, bronze, or aluminum base metal.
1. Basis-of-Design Product:
    - a. IVES Hardware; an Ingersoll-Rand company; **407 and 436 or 438**
      - 1) Provide wall bumpers wherever possible. Provide floor stops where the use of wall bumpers is not feasible, provided the location of the stop is not a stumbling hazard or would cause the door to rack at the hinges.
  2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Rockwood Manufacturing
    - b. Trimco
    - c. Substitutions: In accordance with Section 012500 "Substitution Procedures".

## 2.16 OVERHEAD STOPS AND HOLDERS

- A. Overhead Stops and Holders: BHMA A156.6; Grade 1; Track, slide, arm and jamb bracket to be constructed of extruded bronzed and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
1. Basis-of-Design Product:
    - a. Glynn-Johnson; an Ingersoll-Rand company; **90S**
  2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Rixson Door Controls
    - b. Rockwood Manufacturing Company
    - c. SARGENT Manufacturing Company; an ASSA ABLOY Group company
    - d. Substitutions: In accordance with Section 012500 "Substitution Procedures".

## 2.17 SMOKE SEALS (SMOKE AND FIRE RATED DOORS)

- A. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke ratings indicated, based on testing according to UL 1784.
1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- B. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL 10C.



1. Provide intumescent seals as indicated to meet UL 10C Standard for Positive Pressure Fire Tests of Door Assemblies and UBC 7-2, Fire Test of Door Assemblies.
- C. General: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
1. Basis-of-Design Products:
    - a. Pemko Manufacturing Co.; an ASSA ABLOY Group company
      - 1) Smoke Rated Doors: **S88D** at the jambs and heads.
      - 2) Fire Rated Doors: Provided by the door manufacturer.
  2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Reese Enterprises, Inc.
    - b. Zero International.
    - c. Substitutions: In accordance with Section 012500 "Substitution Procedures".

#### 2.18 WEATHERSTRIPPING (DOOR GASKETING)

- A. Door Gasketing: BHMA A156.22; air leakage not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.
1. Basis-of-Design Product:
    - a. Zero International
      - 1) Head and Jamb: **#328AA**, solid neoprene in an extruded aluminum housing.
      - 2) Sill: **#339AA** with extruded aluminum housing, solid neoprene.
  2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. National Guard Products.
    - b. Pemko Manufacturing Co.; an ASSA ABLOY Group company.
    - c. Substitutions: In accordance with Section 012500 "Substitution Procedures".

#### 2.19 THRESHOLDS

- A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.
1. Basis-of-Design Product:
    - a. Pemko Manufacturing Co.; an ASSA ABLOY Group company; **2005AT**

2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. National Guard Products.
  - b. Zero International.
  - c. Substitutions: In accordance with Section 012500 "Substitution Procedures".

## 2.20 METAL PROTECTIVE TRIM UNITS

- A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch-thick stainless steel; beveled on four (4) edges; with manufacturer's standard machine or self-tapping screw fasteners.
  1. Kick Plates: 16 inches high.
  2. All plates are 2 inches less width of door on single doors, 1 inch less width of door on pairs.
  3. Basis-of-Design Product:
    - a. Burns Manufacturing Incorporated
  4. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Rockwood Manufacturing Company
    - b. Trimco
    - c. Substitutions: In accordance with Section 012500 "Substitution Procedures".

## 2.21 AUXILIARY DOOR HARDWARE

- A. Auxiliary Hardware: BHMA A156.16.
  1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Hager Companies.
    - b. Rockwood Manufacturing Company.
    - c. Stanley Commercial Hardware; Div. of The Stanley Works.
    - d. Substitutions: In accordance with Section 012500 "Substitution Procedures".

## 2.22 AUXILIARY ELECTRIFIED DOOR HARDWARE

- A. Auxiliary Electrified Door Hardware:
  1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. GE Security, Inc.

- b. SARGENT Manufacturing Company; an ASSA ABLOY Group company.
- c. Schlage Commercial Lock Division; an Ingersoll-Rand company.
- d. Security Door Controls.
- e. Substitutions: In accordance with Section 012500 "Substitution Procedures".

## 2.23 FABRICATION

- A. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.
- B. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
  - 1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
  - 2. Fire-Rated Applications:
    - a. Wood or Machine Screws: For the following:
      - 1) Hinges mortised to doors or frames; use threaded-to-the-head wood screws for wood doors and frames.
      - 2) Strike plates to frames.
      - 3) Closers to doors and frames.
    - b. Steel Through Bolts: For the following unless door blocking is provided:
      - 1) Surface hinges to doors.
      - 2) Closers to doors and frames.
      - 3) Surface-mounted exit devices.
  - 3. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
  - 4. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."

## 2.24 FINISHES

- A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations

in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Notify Architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
- B. Wood Doors: Comply with DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."

### 3.3 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
  - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
  - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
  - 3. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing. Do not install surface-mounted items until finishes have been completed on substrates involved.
  - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
  - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

- C. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- D. Boxed Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings. Verify location with Architect.
  - 1. Configuration: Provide least number of power supplies required to adequately serve doors with electrified door hardware.
- E. Thresholds: Set thresholds for doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."
- F. Stops: Provide wall or floor stops for doors unless other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.
- G. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- H. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

#### 3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Supplier with perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

#### 3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
  - 1. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
  - 2. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

#### 3.6 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

#### 3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate and maintain mechanical and electromechanical door hardware.

## 3.8 DOOR HARDWARE SCHEDULE

- A. Provide hardware as specified in the previous articles in sets according to the following schedule and as indicated in the Door Schedule on the Drawings.
- B. The hardware supplier shall meet with the Architect and/or Owner to determine lock functions and keying requirements.

**HW-1****EACH TO HAVE:**

BUTTS  
1 CLASSROOM LOCKSET  
1 CLOSER/STOP  
1 KICK PLATE  
SILENCERS

**DOOR:** A102A, B115C, B121C

**HW-3****EACH TO HAVE:**

BUTTS  
1 PUSH/PULL  
1 CLOSER  
1 STOP  
1 KICK PLATE  
SILENCERS  
1 DEADBOLT

**DOOR:** A109B, A112B, C112A,  
C113A

**HW-5****EACH TO HAVE:**

BUTTS  
1 STOREROOM LOCKSET  
1 CLOSER  
1 STOP  
1 KICK PLATE  
SILENCERS

**DOOR:** A103A, A105A, A106A,  
A118A, A125A, A129A,  
A130A, B108A, B119A,  
B122A, B123A, B127A,  
C110A, C128A, C147A

**HW-7****HW-2****EACH TO HAVE:**

BUTTS  
1 FACULTY RESTROOM LOCKSET  
1 CLOSER/STOP  
1 KICK PLATE  
SILENCERS

**DOOR:** A108A, B126A

**HW-4****EACH TO HAVE:**

BUTTS  
1 FACULTY RESTROOM LOCKSET  
1 CLOSER  
1 STOP  
1 KICK PLATE  
SILENCERS

**DOOR:** A111A, C114A, C115A

**HW-6****EACH TO HAVE:**

CONTINUOUS HINGES  
1 EXIT DEVICE (BLANK)  
1 CLOSER  
1 OH STOP  
1 THRESHOLD  
WEATHERSTRIPPING

**DOOR:** A121B, A122B, A123B, A124B,  
C117B, C120B, C122B, C125B,  
C126B, C129B, C130B, C132B,  
C133B, C134B

**HW-8**

EACH TO HAVE:

CONTINUOUS HINGES  
3 EXIT DEVICES (PASSAGE)  
3 CLOSERS  
3 STOPS  
1 THRESHOLD  
1 REMOVABLE MULLION  
WEATHERSTRIPPING

DOOR: B101A

**HW-9**EACH TO HAVE:

BUTTS  
1 EXIT DEVICE (CLASSROOM)  
1 CLOSER  
1 STOP  
1 KICK PLATE  
SMOKE SEALS

DOOR: B105A, B105B

**HW-11**EACH TO HAVE:

BUTTS  
1 CLASS. SECURITY LOCKSET  
1 CLOSER  
1 STOP  
1 KICK PLATE  
SILENCERS

DOOR: A126A, A131A, B102A,  
B129A, B129B, B130A,  
C135A, C136A

**HW-13**EACH TO HAVE:

BUTTS  
1 STOREROOM LOCKSET  
1 CLOSER  
1 STOP  
1 KICK PLATE  
1 ELECTRIC STRIKE  
CARD READER  
SILENCERS

DOOR: A119A, B131A

EACH TO HAVE:

CONTINUOUS HINGES  
2 EXIT DEVICES (PASSAGE)  
2 CLOSERS  
2 STOPS  
1 THRESHOLD  
1 REMOVABLE MULLION  
WEATHERSTRIPPING

DOOR: B104A, C116A

**HW-10**EACH TO HAVE:

CONTINUOUS HINGES  
1 EXIT DEVICE (CLASSROOM)  
1 CLOSER  
1 OH STOP  
1 THRESHOLD  
WEATHERSTRIPPING

DOOR: B105C, B105D

**HW-12**EACH TO HAVE:

BUTTS  
1 CLASSROOM LOCKSET  
1 CLOSER  
1 STOP  
1 KICK PLATE  
SILENCERS

DOOR: B103A, B106B, B106C, B106D,  
B115A, B117A, B120A, B121A

**HW-14**EACH TO HAVE:

CONTINUOUS HINGES  
1 EXIT DEVICE (CLASSROOM)  
1 CLOSER  
1 OH STOP  
1 THRESHOLD  
1 ELECTRIC STRIKE  
CARD READER  
WEATHERSTRIPPING

DOOR: B106E

**HW-15****EACH TO HAVE:**

BUTTS  
1 CLASSROOM LOCKSET  
1 CLOSER  
1 STOP  
1 KICK PLATE  
SMOKE SEALS

**DOOR:** B106A

**HW-17\*****EACH TO HAVE:**

CONTINUOUS HINGES  
3 EXIT DEVICES  
3 CLOSERS  
3 OH STOPS  
2 THRESHOLDS  
1 REMOVABLE MULLION  
1 ELECTRIC STRIKE  
1 CARD READER  
WEATHERSTRIPPING  
3 PULLS

**DOOR:** B100A

**HW-19****EACH TO HAVE:**

BUTTS  
1 PRIVACY LOCKSET  
1 CLOSER  
1 STOP  
1 KICK PLATE  
SILENCERS

**DOOR:** C109A

**HW-21****EACH TO HAVE:**

CONTINUOUS HINGES  
1 EXIT DEVICE (CLASSROOM)  
1 CLOSER  
1 STOP  
1 THRESHOLD  
WEATHERSTRIPPING

**HW-16****EACH TO HAVE:**

BUTTS  
1 OFFICE LOCKSET  
1 CLOSER  
1 STOP  
1 KICK PLATE  
SILENCERS

**DOOR:** B107A, C105A, C107A, C111A

**HW-18****EACH TO HAVE:**

BUTTS  
3 EXIT DEVICES (CLASSROOM)  
1 CLOSER/STOP  
2 CLOSERS  
2 STOPS  
3 KICK PLATES  
2 THRESHOLDS  
1 REMOVABLE MULLION  
SMOKE SEALS

**DOOR:** B113A

**HW-20****EACH TO HAVE:**

CONTINUOUS HINGES  
1 EXIT DEVICE (PASSAGE)  
1 CLOSER  
1 STOP  
1 THRESHOLD  
WEATHERSTRIPPING

**DOOR:** B132A

**HW-22\*****EACH TO HAVE:**

CONTINUOUS HINGES  
3 EXIT DEVICES  
3 CLOSERS  
3 OH STOPS  
3 THRESHOLDS  
1 ELECTRIC STRIKE  
1 CARD READER  
WEATHERSTRIPPING



3 PULLS

DOOR: B132BDOOR: C100A**HW-23****HW-24**EACH TO HAVE:EACH TO HAVE:

CONTINUOUS HINGES  
1 CLASSROOM LOCKSET  
1 CLOSER  
1 OH STOP  
1 THRESHOLD  
WEATHERSTRIPPING

1 CLASS. SECURITY LOCKSET  
1 CLOSER  
1 STOP  
1 KICK PLATE  
REMAINING HDWR BY MANUF.

DOOR: B129C, B133BDOOR: B112A, B112B**HW-25****HW-26**EACH TO HAVE:EACH TO HAVE:

BUTTS  
2 EXIT DEVICES (CLASSROOM)  
2 CLOSERS  
2 STOPS  
2 KICK PLATES  
1 REMOVABLE MULLION  
SMOKE SEALS

CONTINUOUS HINGES  
2 EXIT DEVICES (BLANK)  
2 CLOSERS  
2 OH STOPS  
1 THRESHOLD  
1 REMOVABLE MULLION  
WEATHERSTRIPPING

DOOR: B118A, C106ADOOR: B111A**HW-27****HW-28**EACH TO HAVE:EACH TO HAVE:

CONTINUOUS HINGES  
3 EXIT DEVICES (PASSAGE)  
3 CLOSER/STOPS  
3 THRESHOLDS  
WEATHERSTRIPPING

BUTTS  
1 PRIVACY LOCKSET  
1 CLOSER/STOP  
1 KICK PLATE  
SILENCERS

DOOR: C101ADOOR: A127A**HW-29****HW-30**EACH TO HAVE:EACH TO HAVE:

BUTTS  
1 STOREROOM LOCKSET  
1 CLOSER/STOP  
1 KICK PLATE  
SILENCERS

BUTTS  
1 OFFICE LOCKSET  
1 CLOSER/STOP  
1 KICK PLATE  
SILENCERS

DOOR: A104A, A107A, A110A,  
A128A, B124A, C104A,DOOR: B116A, B125A, B133A, C102A,  
C137A, C139A, C140A, C143A

C145A

**HW-31****EACH TO HAVE:**

BUTTS  
1 STOREROOM LOCKSET  
1 CLOSER/STOP  
1 CLOSER  
1 STOP  
2 KICK PLATES  
FLUSHBOLTS  
SILENCERS

**DOOR:** B114A, C144A

**HW-33****EACH TO HAVE:**

BUTTS  
1 PASSAGE LOCKSET  
1 CLOSER  
1 STOP  
1 KICK PLATE  
SILENCERS

**DOOR:** B115B,  
B121B, C118A, C119A,  
C123A, C124A, C127A

**HW-32****EACH TO HAVE:**

CONTINUOUS HINGES  
2 EXIT DEVICES (CLASSROOM)  
2 CLOSERS  
2 OH STOPS  
1 THRESHOLD  
1 REMOVABLE MULLION  
WEATHERSTRIPPING

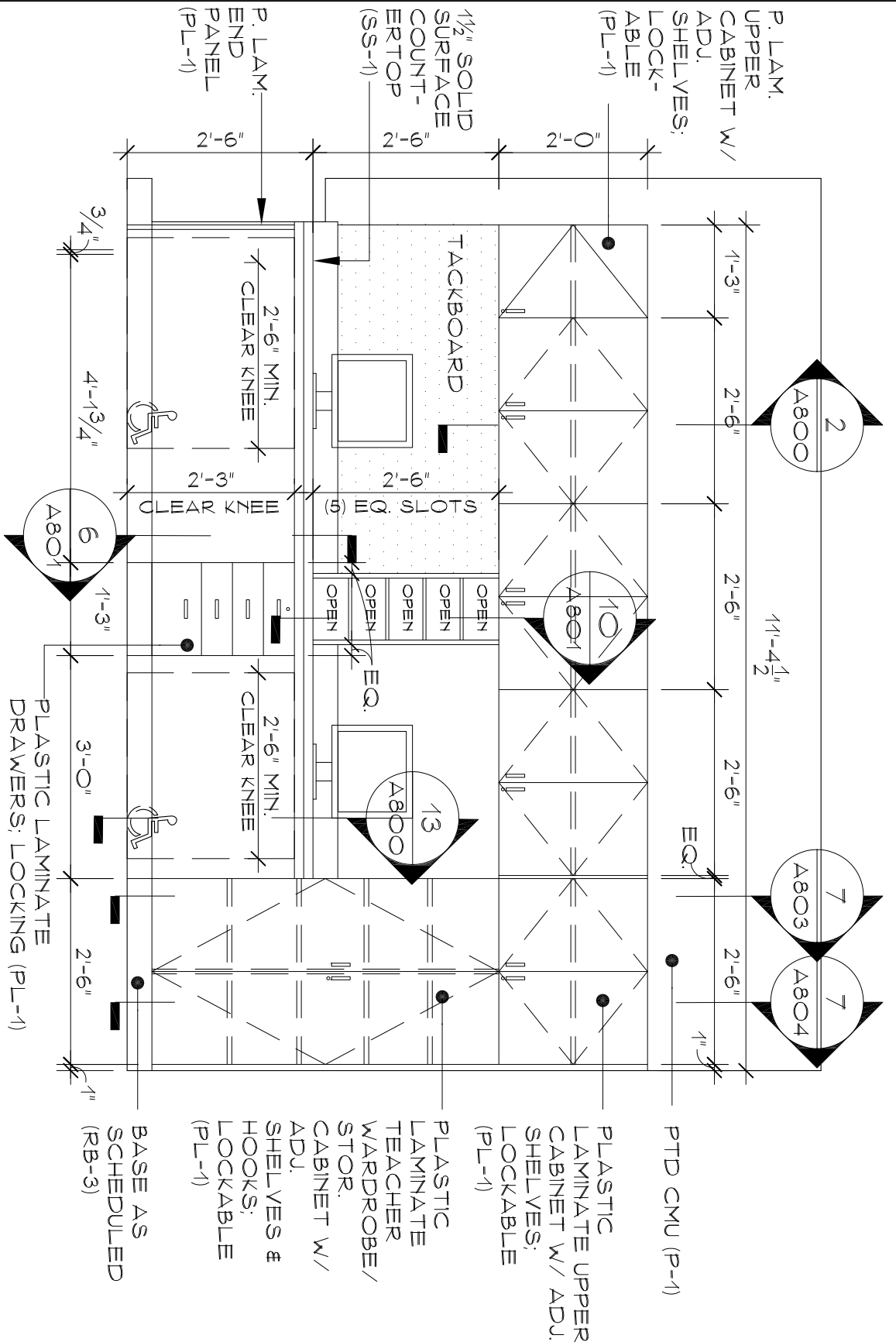
**DOOR:** A131B, B113B, B113C, C121A,  
C131A, C146A

**HW-34****EACH TO HAVE:**

BUTTS  
1 CLASS. SECURITY LOCKSET  
1 CLOSER/STOP  
1 KICK PLATE  
SILENCERS

**DOOR:** A100A, A114A, A115A, A116A,  
A117A, A121A, A122A, A123A,  
A124A, B130B, C117A, C120A,  
C122A, C125A, C126A, C129A,  
C130A, C132A, C133A, C134A

END OF SECTION 087100



# READING/LANGUAGE C136 SOUTH

SCALE: 1/2" = 1'-0"

C135 SIM. OPP.

Project Title:

Expansion & Renovate as New  
Crystal Lake Elementary School  
284 Sandy Beach Road  
Ellington, Connecticut 06029



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3190 Whitney Avenue, Hamden, CT 06518-2340  
Tel. 203 230 9007 Fax. 203 230 8247  
silverpetrucelli.com

Drawing Title:

Reading/  
Language  
Elevations

Date:

01/08/14

Scale:

AS NOTED

Drawn By:

AMC

Project Number:

12.140

Drawing Number:  
BID PHASE

SKA6

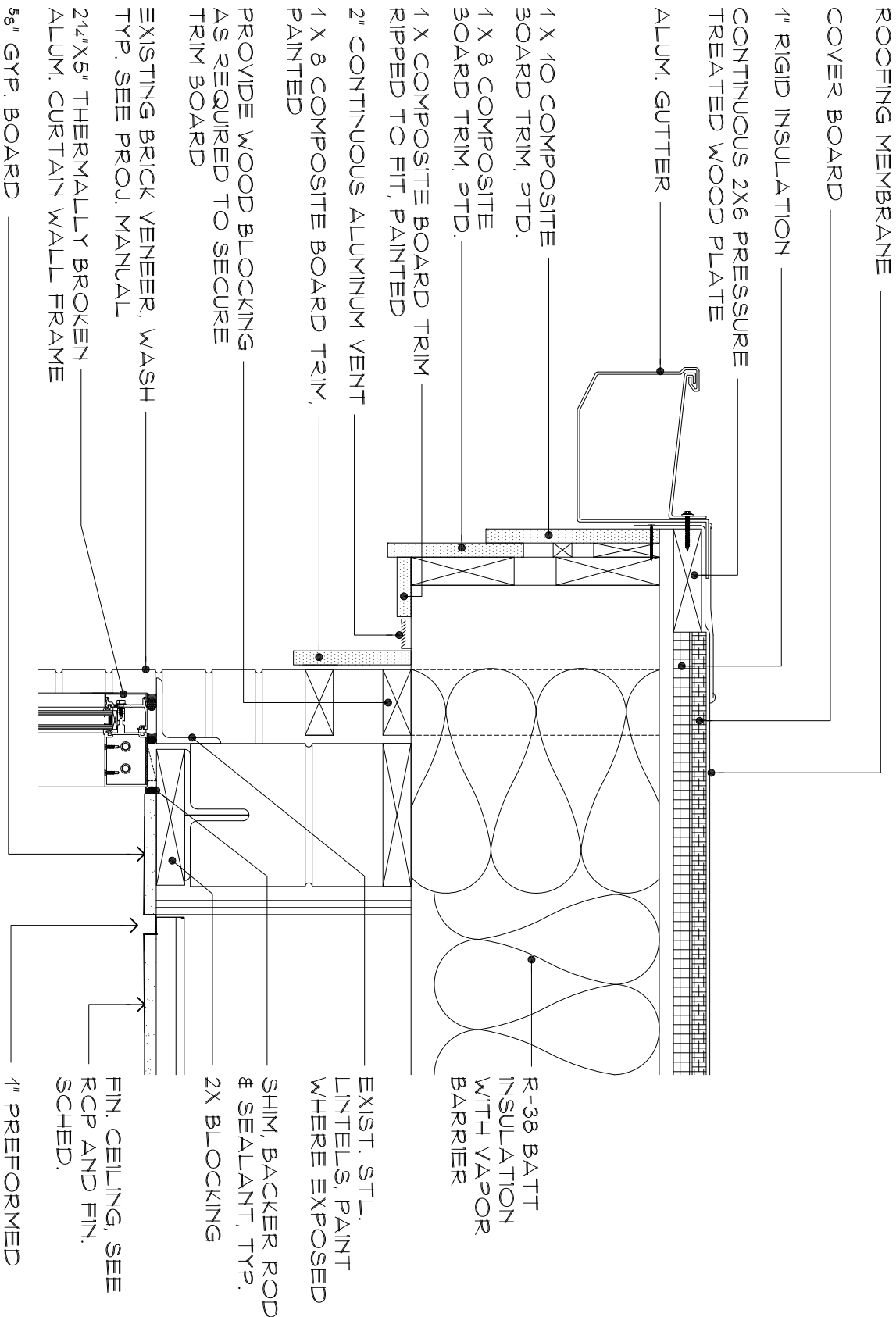
# HEAD DETAIL, AREA "A"

SCALE: 1/2" = 1'-0"

A552

Drawing Number:  
BID PHASE

SKA7



Drawing Title:

Head Detail  
Area "A"

Date:

1/8/2014

Scale:

AS NOTED

Drawn By:

PEJ

Project Number:

12.140



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3190 Whitney Avenue, Hamden, CT 06518-2340

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Project Title:

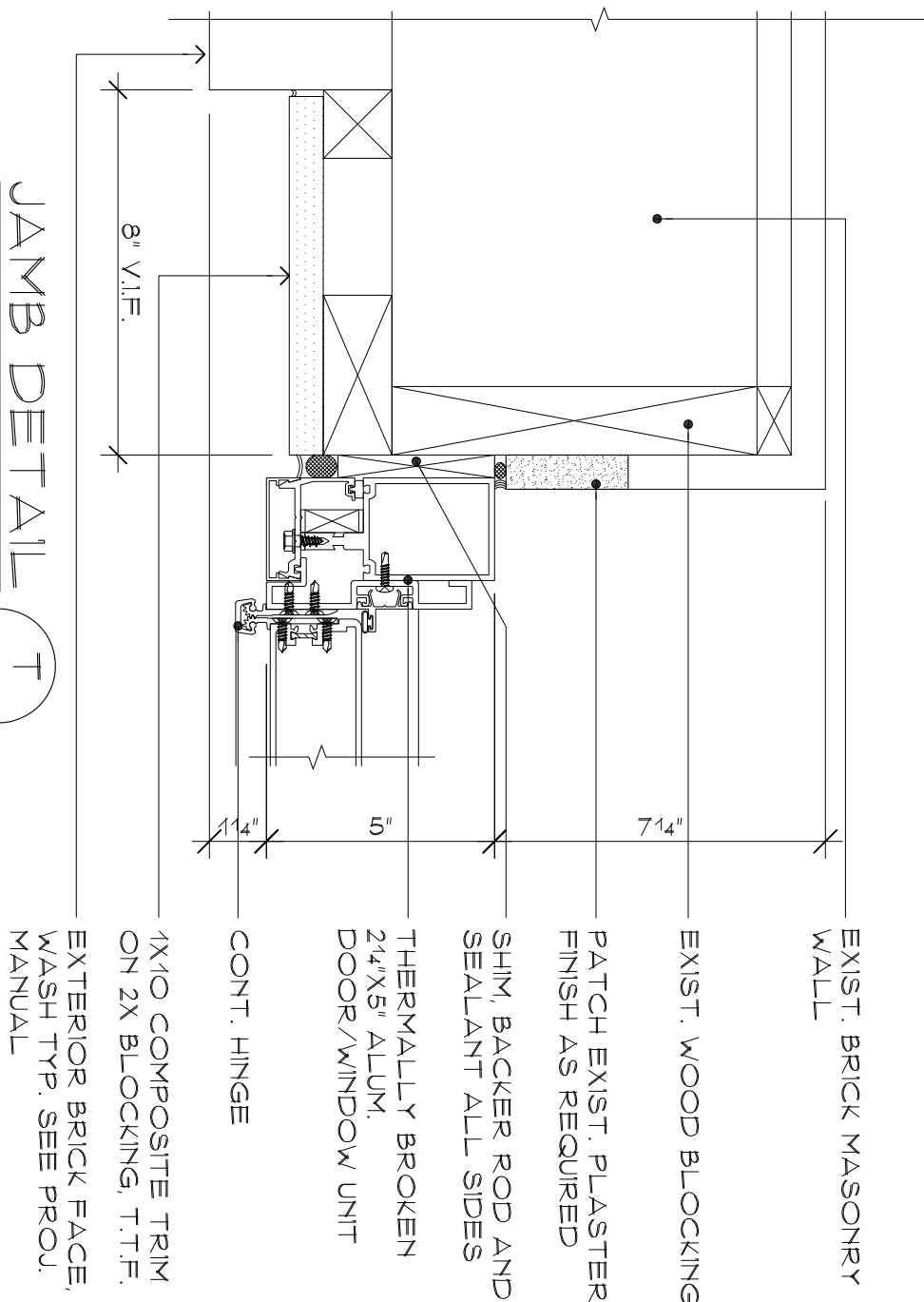
Expansion & Renovate as New  
Crystal Lake Elementary School

284 Sandy Beach Road  
Ellington, Connecticut 06029

# JAMB DETAIL

SCALE: 3" = 1'-0"

T  
A630



Project Title:

Expansion & Renovate as New  
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silverpetrucci.com

Drawing Title:

Jamb Detail  
Area "A"

Date:

1/8/2014

Scale:

AS NOTED

Drawn By:

PEJ

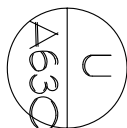
Project Number:

12.140

Drawing Number:

BID PHASE

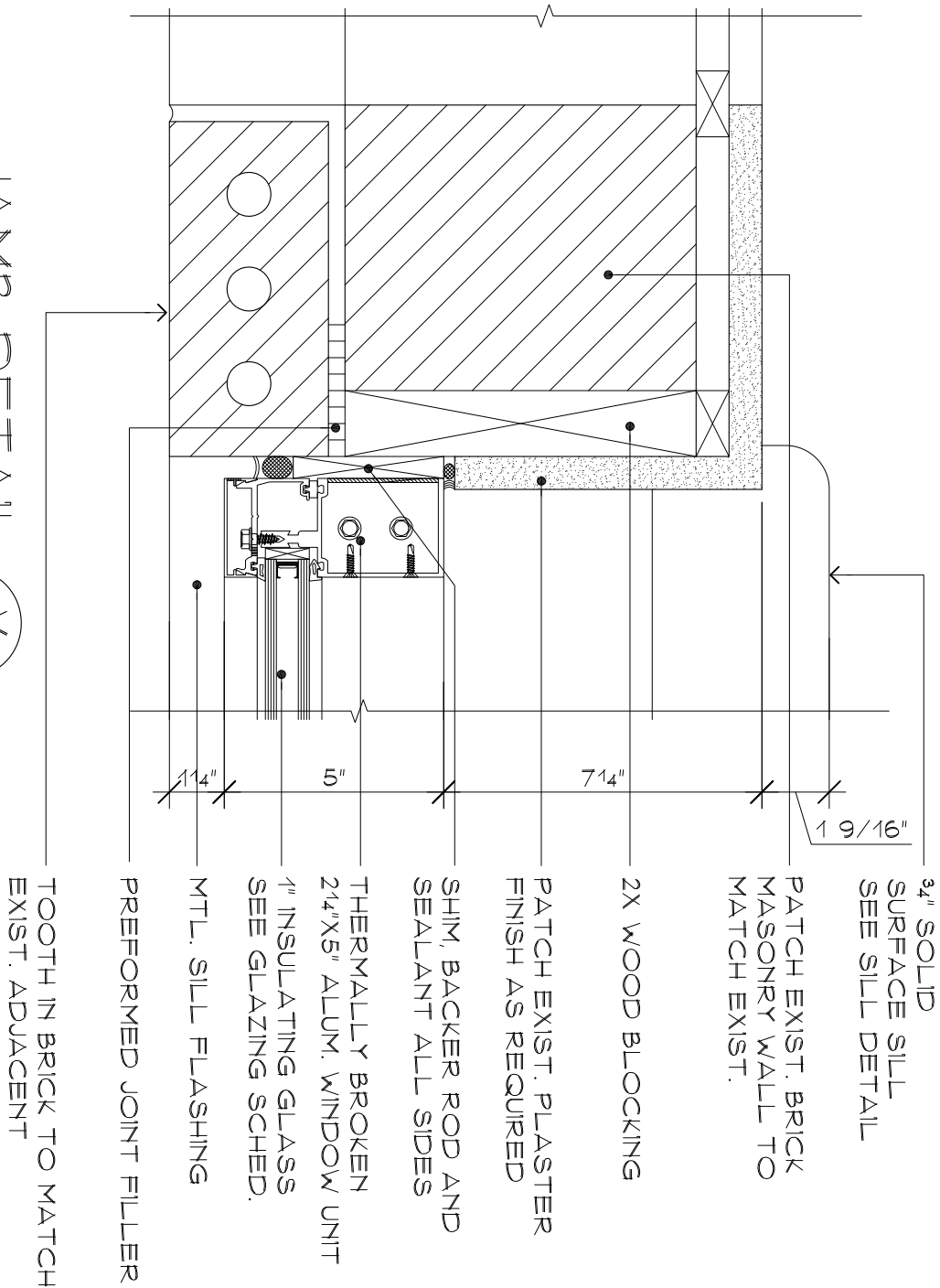
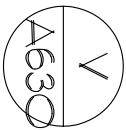
SKA8



Expansion & Renovate as New  
Crystal Lake Elementary School  
284 Sandy Beach Road  
Ellington, Connecticut 06029

# JAMB DETAIL

SCALE: 3" = 1'-0"



Project Title:

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Drawing Title:

Jamb Detail  
Area "A"

Date:

1/8/2014

Scale:

AS NOTED

Drawn By:

PEJ

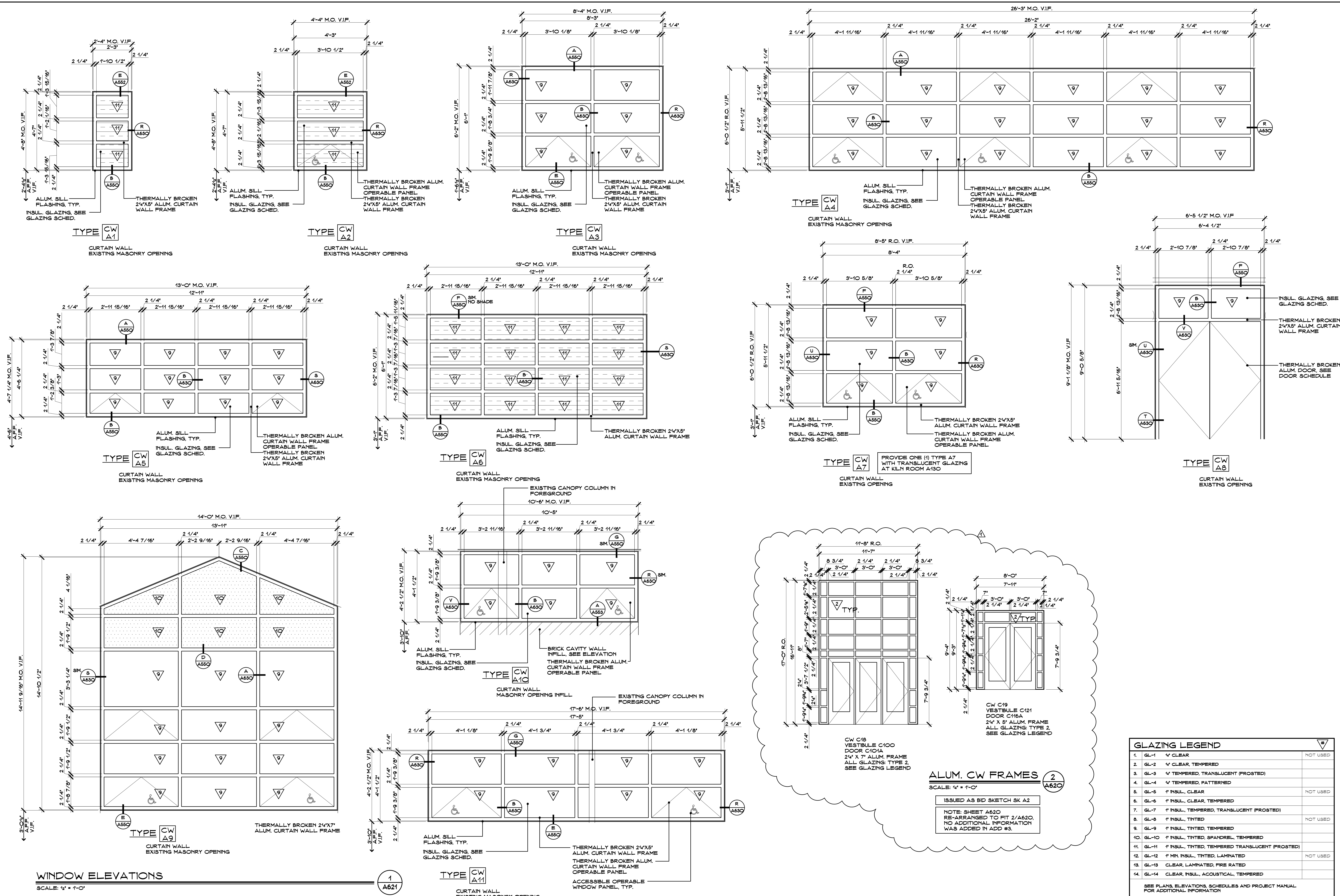
Project Number:

12.140

Drawing Number:

BID PHASE

SKA10



Project Title:

Expansion and Renovate as New Project - PHASE 1 of 3

**Crystal Lake Elementary School**

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Revision: Description: Date: Revised By:

ISSUED FOR BIDDING NOV. 26, 2013

APPENDUM #3 12/31/2013 PEJ

APPENDUM #7 1/9/2014 PEJ

Drawing Title:

RE-ISSUED ENTIRE DRAWING

**WINDOW ELEVATIONS**

State Project Number: 048-0058 EA/RR/PS

Date: June 18, 2013

Scale: AS NOTED

Drawn By: PEJ

Project Number: 12.140

Drawing Number:

A620